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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,363	04/16/2004	Ha Sang Lee	8733.1030.00-US	8107
30827 7590 11/09/2007 MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			EXAMINER TSEGAYE, DANIEL	
			ART UNIT 2629	PAPER NUMBER
			MAIL DATE 11/09/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/825,363	Applicant(s) LEE ET AL.	
	Examiner DANIEL TSEGAYE	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 29 and 30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/06/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. *The amendment filed on 07/11/2007 has been entered and considered by the examiner.*

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2-10 and 25-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2-10 and 25-28 on the first line of each claim recite the limitation "The flat panel display device". There is insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11-14, 19-21 and 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Naito (U.S Pat # 6,462,735) in view of Hasegawa (U.S Pub # 2001/0028335).

As to claim 24, Naito discloses a method of driving a flat display device, including:

R, G and B cells having different light-emission efficiencies (e.g., the luminance in Fig. 4, has different light-efficiencies as luminance pass 10% and also it's well known to have R, G and B cells having different light-efficiencies because the wavelength of each colors are different);

a data converter (210) inputted with a N-bit (e.g., 8 bit) digital data signal for Converting the N-bit digital data signal into a M-bit (e.g., 9 bit or 10 bit) digital data signal, wherein each of N and M is an integer and M (e.g., 9 or 10) is greater than N (e.g., 8) (see col.10, lines 15-22); and

a data driving circuit (200, 300 and 430) inputted with the M-bit (e.g., 10 bit) digital data signal for generating an analog video signal (i.e. D/A converter) and applying the analog video signal (e.g., picture signal) to the R, G and B cells (see col.13, line 60 through col. 14, line15 and col.12 lines 41-49). Naito do not teaches the display is an electro-luminescence. Hasegawa teaches a flat panel including both an electro-luminescence display and a liquid crystal display (see [0051]).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to have added a liquid crystal display includes an electro-luminescence display as taught by Hasegawa to the LCD display device of Naito since LCD and electroluminescence display can be substituted each other, and electroluminescence display can prevent the deterioration of the image quality such as

unclearness of the outline and bluing of colors when displaying a moving images (see [0025]).

As to claim 21, this claim differs from claim 24 only in that claim 21 is a method claim.

As to claim 11, this claim differs from claim 21 only in the limitation " Red, Green and Blue M-bit digital data signal correspond a gray scale numbers " is additionally recited. Naito teaches Red, Green and Blue (e.g., picture signal) M-bit digital data signal correspond a gray scale numbers (see col. 11, line 33 through col.12, lines 50-65).

As to claim 12, Naito teaches wherein the gray scale numbers of the Red, Green and Blue M-bit digital data signals are different from each other (see Fig. 4).

As to claim 13, Naito teaches wherein the gray scale number of the Red M-bit digital data signal is greater than the gray scale numbers of the Green and Blue digital data signals (Fig. 4 for example, red curve has the highest gradation numbers about 260).

As to claim 14, Naito teaches wherein the gray scale number of the Green M-bit digital data signal is greater than the gray scale number of the Blue digital data signal (Fig. 4, shows green curve has the second highest gradation number after red).

As to claim 19, Hasegawa teaches the pixel being both a liquid crystal cell and an electroluminescence cell (see [0055]).

As to claim 20, Naito teaches wherein each of the pixels (410) is a liquid crystal display cell (see col.7, lines 63-67).

6. Claims 1-9,15-18,22-23,25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naito in view of Hasegawa, and further in view of Kang (U.S. Pub # 2002/0063666).

As to claims 1, note the discussion of Naito and Hasegawa above, this claim differs from claim 11 in that the limitation "a look-up table", "a gamma voltage generator generating a plurality of gamma voltages corresponding to the gray scale numbers" are additionally recited. Naito does not mention these limitations. Kang teaches a data converter (210) having a look-up table (167), a gamma voltage generator (164) generating a plurality of gamma voltages corresponding to the gray scale numbers (see [0077-0079]).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to have added a data converter having a look-up table, a gamma voltage generator generating a plurality of gamma voltages corresponding to the gray scale numbers as taught by Kang to display device of Naito modified by Hasegawa to improve a display quality of an image input from various input/output device to provide a better picture quality (see [0089]).

As to claims 2 and 28, Kang teaches a timing controller (162) outputting the Red, Green and Blue N-bit digital data signals to the data converter (167)(see [0076 and 0079]).

As to claim 3, Kang teaches wherein the data driving circuit (e.g., 83, 84) includes the gamma voltage generator.

As to claim 4, Naito teaches wherein the gray scale numbers of the Red, Green and Blue M-bit digital data signals are different from each other (see Fig. 4).

As to claim 5, Naito teaches wherein the gray scale number of the Red M-bit digital data signal is greater than the gray scale numbers of the Green and Blue digital data signals (see Fig. 4).

As to claim 6, Naito teaches wherein the gray scale number of the Green M-bit digital data signal is greater than the gray scale number of the Blue digital data signal (see Fig. 4).

As to claims 7 and 16, Naito teaches wherein the Red analog video signal applied to the respective pixel has a voltage level ranged in about 0V to about 5V(Fig. 3 and see col. 10, lines 50-52).

As to claims 8 and 17, Naito teaches wherein the Green analog video signal applied to the respective pixel has a voltage level ranged in about 0V to about 2.5V(see Fig. 3 and col. 10, lines 50-52).

As to claims 9 and 18, Naito teaches wherein the Blue analog video signal applied to the respective pixel has a voltage level ranged in about 0V to about 1.9V(see Fig. 3 and col. 10, lines 50-52).

As to claim 15, Kang teaches the step of converting the Red, Green and Blue M-bit digital data signals into Red, Green and Blue analog video signals further includes: generating a plurality of different gamma voltages corresponding to the gray scale numbers using a gamma voltage generator (see [0013]).

As to claims 22, Kang teaches converting digital data signal further includes referring to a look-up table (167, of Kang).

As to claim 23, Kang teaches generating a gamma voltage using a gamma voltage generator (164) (see [0013]).

As to claim 25, Kang teaches wherein the data converter further includes a look-up table (167)(see Fig. 16).

As to claim 26, Kang teaches the data converter converting digital data signal (e.g., 6 bit) using the look-up table (167), wherein the digital data signal corresponds to a gray scale number.

As to claim 27, Kang teaches a gamma voltage generator (4) for generating a gamma voltage corresponding to the gray scale number and outputting the gamma voltage (see [0013]) to the data driving circuit (see [0005]).

As to claim 30, Naito teaches wherein each of the pixels (410) is a liquid crystal display cell (see col.7, lines 63-67).

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Naito in view of Kang as applied to claim 1, and further in view of Hasegawa.

As to claim 10, note the discussion of Naito and Kang above. Both do not teach an electroluminescence cell. Hasegawa teaches the pixel being both a liquid crystal cell and an electroluminescence cell (see [0055]).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to have electroluminescence cell as taught by Hasegawa to the liquid crystal display device of Naito as modified by Kang to prevent the deterioration of moving image, and to give high luminance (see [0025]).

Response to Arguments

8. Applicant's arguments with respect to claims 1, 11, 21 and 24 have been considered but are moot in view of the new ground(s) of rejection.

As to claims 1, 11, 21 and 24 rejected under 35 U.S.C. 102(b) on page 8 paragraph 6, the applicant has amended claims 1, 11, 21 and 24 to read out such that R, G and B cells having different light-emission efficiencies. However, Hasegawa teach R, G, B light emitting EL for providing three colors for pixels (see [0051]). It is well known that the wavelength of R, G and B are different from each other. Thus, they have different light emission efficiencies. Moreover, Naito clearly teaches about R, G and B cells having different light-emission efficiencies (e.g., the luminance in Fig. 4, has different light-efficiencies as luminance pass 10%).

Conclusion

9. The prior art made or record and not relied upon is considered pertinent to applicant's disclosure.

Nakaya (U.S. Pub No. 2006/0004201 A1) is cited to teach the wavelength of R, G, B are different so they can have different efficiency.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL TSEGAYE whose telephone number is 571 270-1715. The examiner can normally be reached on Monday-Friday, 8:00:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHANH NGUYEN can be reached on 571 272 7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Daniel Tsegaye
09/06/2007


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SUPERVISORY PATENT EXAMINER